

MJO-ENSO Teleconnection Interference and Impacts

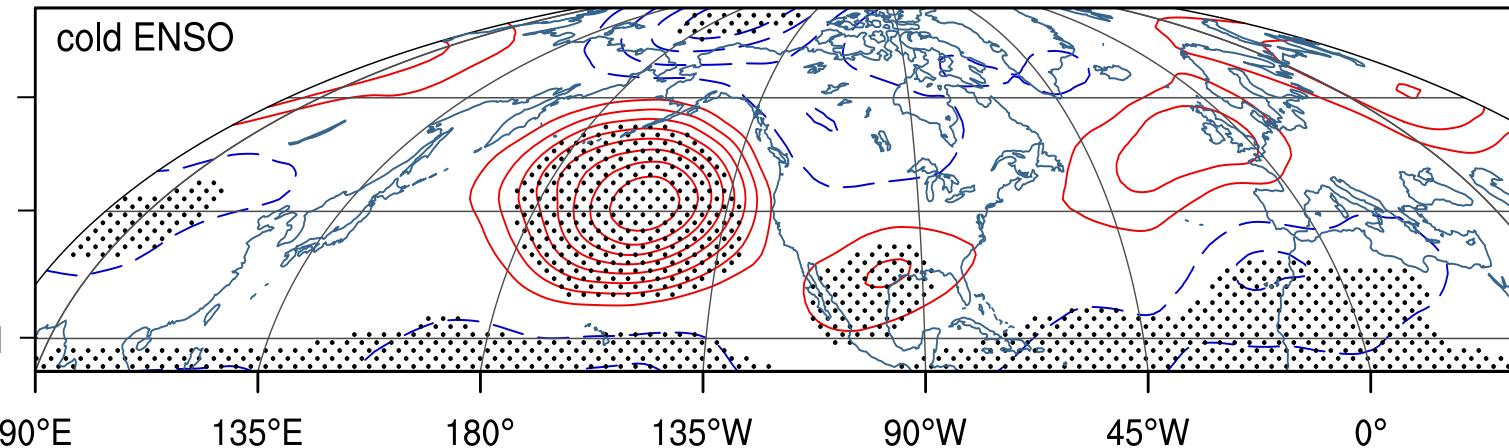
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NOAA-DOE Precipitation Processes and Predictability Workshop

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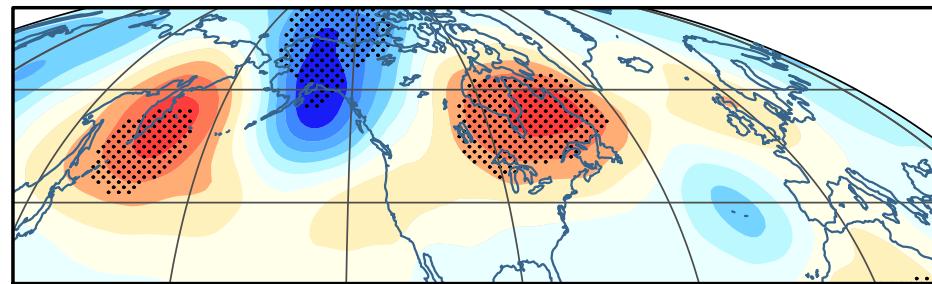
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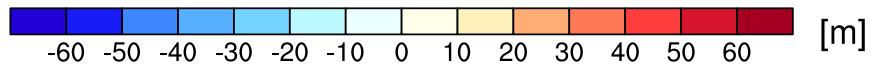
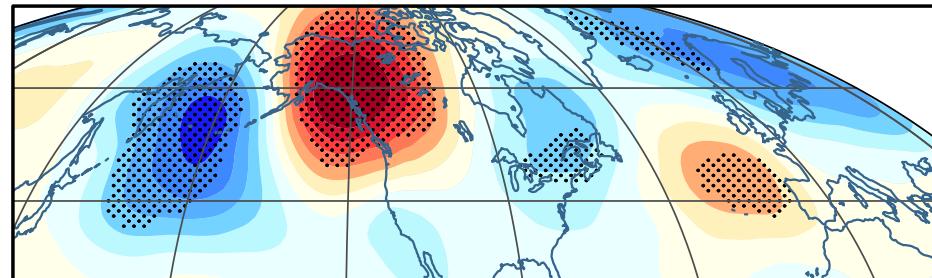
La Niña

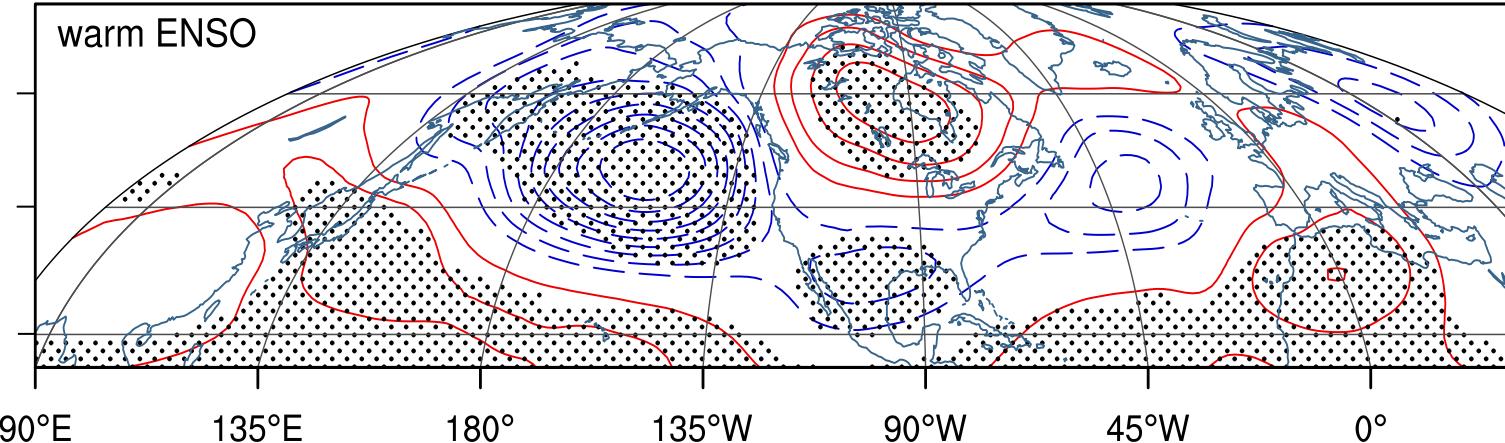
During La Niña, MJO teleconnections are shifted west due to a retracted subtropical jet

30-70 day filtered 500mb gph anomalies
5-9 days after MJO Phase 3 during cold ENSO



5-9 days after MJO Phase 7 during cold ENSO





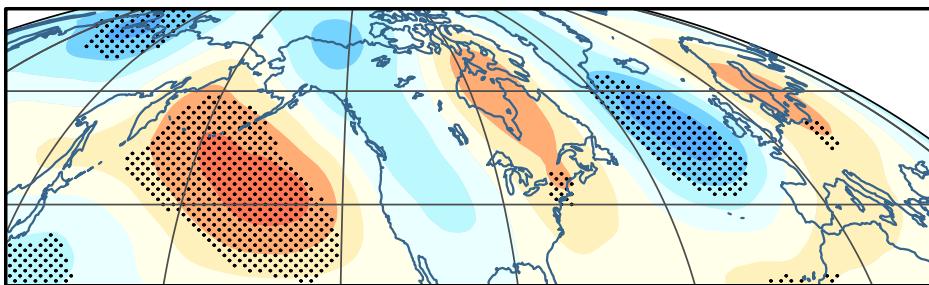
El Niño

ENSO does not only impact MJO convection and the propagation pathway of MJO teleconnections.

ENSO teleconnections also *interfere* with MJO teleconnections

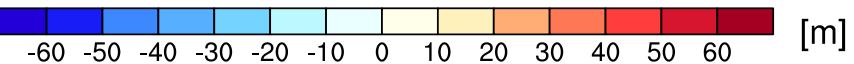
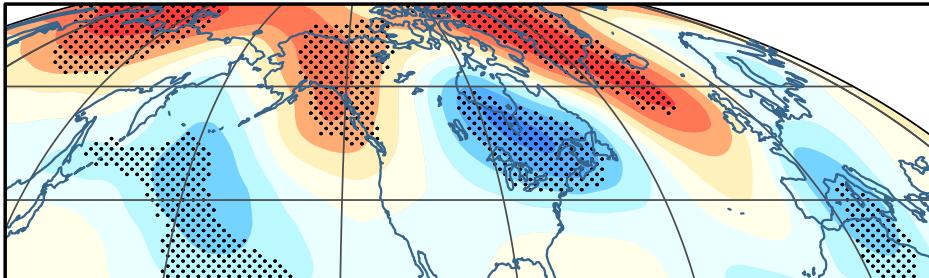
Destructive interference

30-70 day filtered 500mb gph anomalies
5-9 days after MJO Phase 3 during warm ENSO



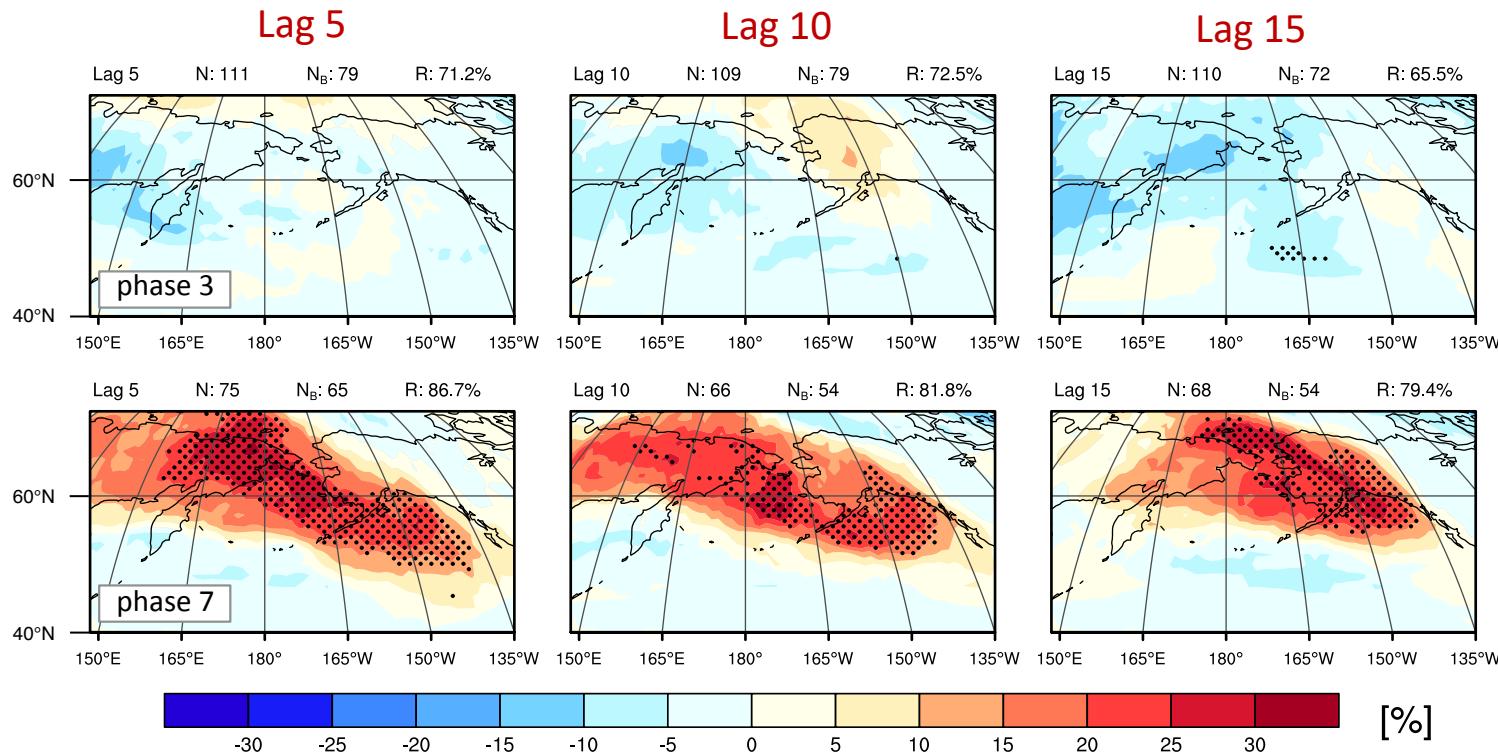
Constructive interference

5-9 days after MJO Phase 7 during warm ENSO



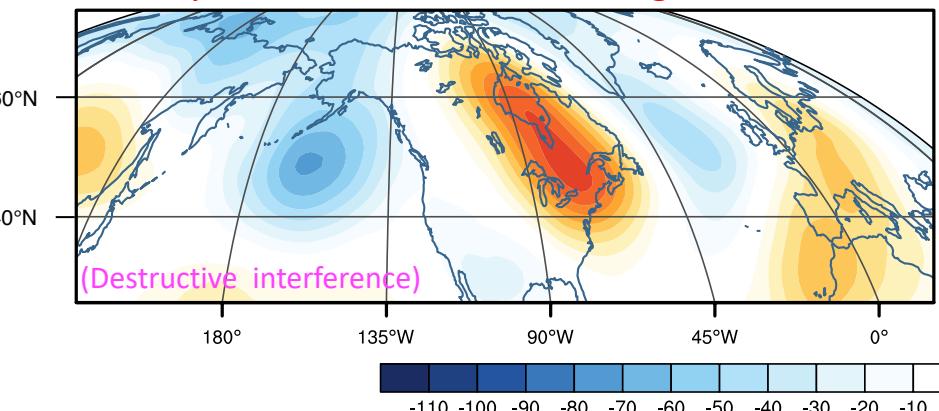
El Niño

Blocking frequency anomalies

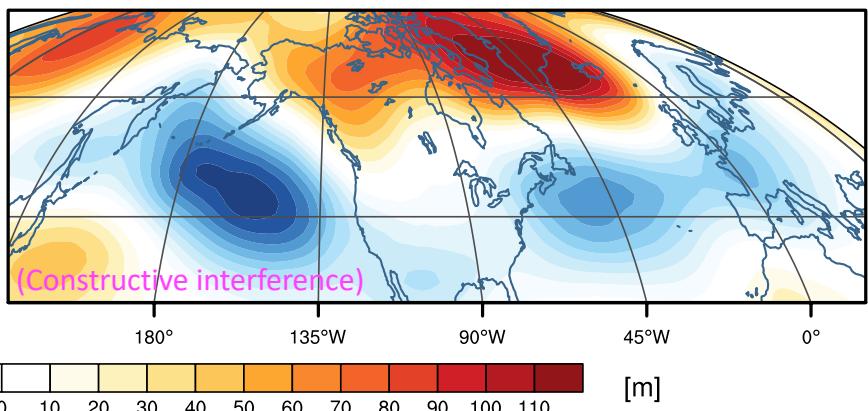


Unfiltered 500mb gph anomalies

5-9 days after MJO Phase 3 during warm ENSO



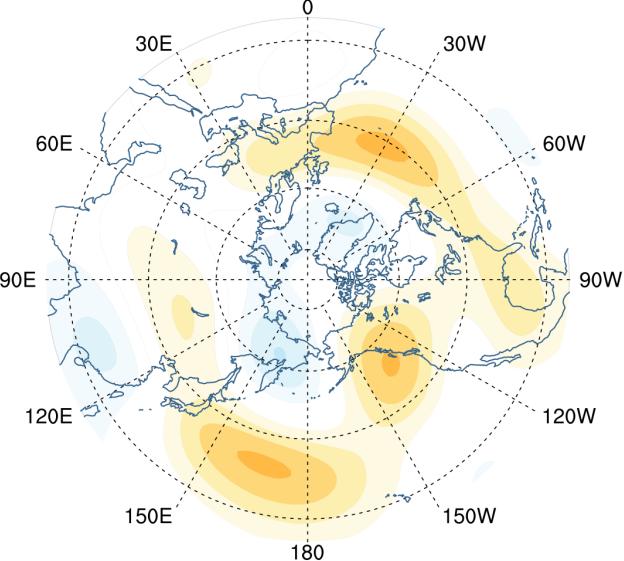
5-9 days after MJO Phase 7 during warm ENSO



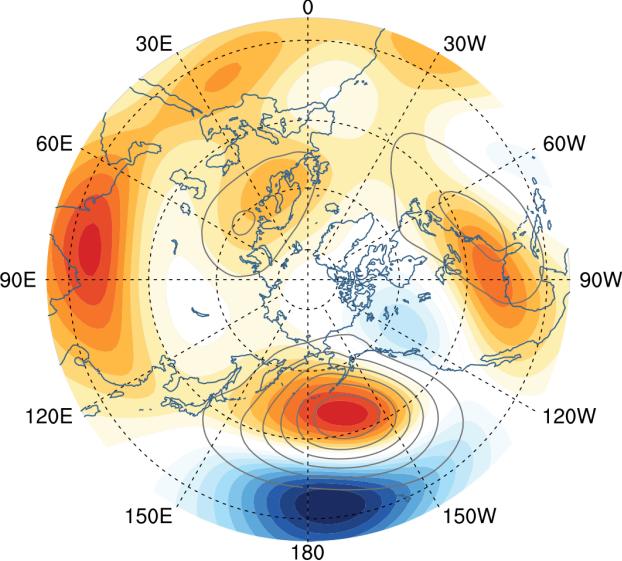
Optimal growth of the Pacific-North American (PNA) pattern using linear inverse modeling (LIM)

ψ_{200}

Extratropical initial conditions

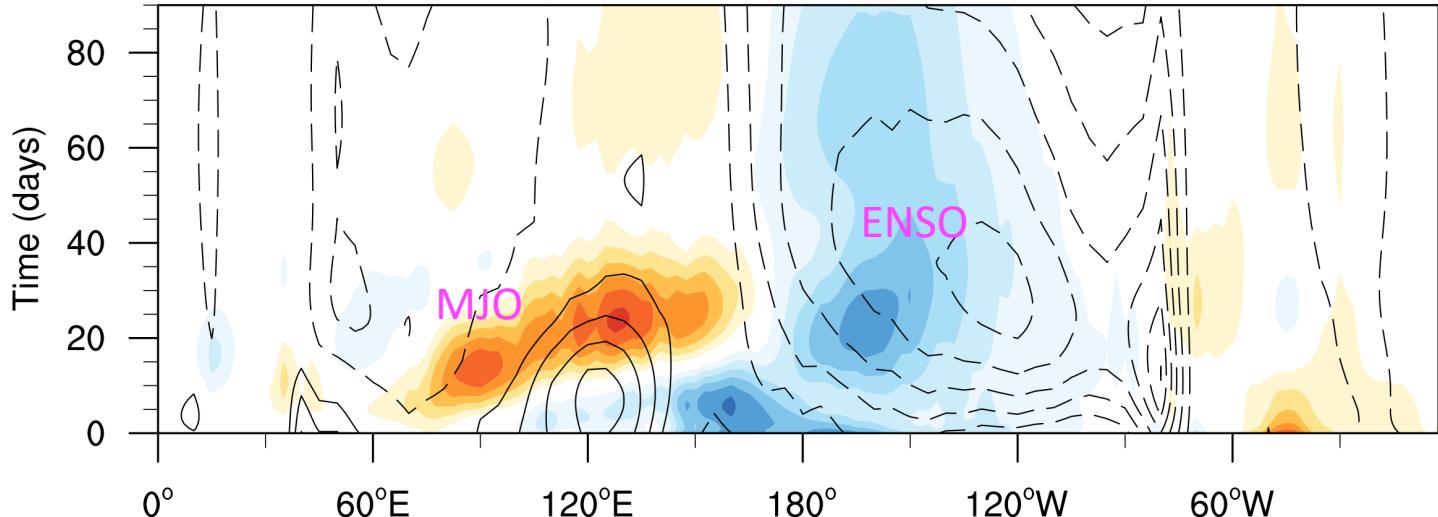


Extratropical final conditions at day 15



[$\times 10^6 \text{ m}^2/\text{s}$]

Tropical
 Q_1 and SST



[K/day]